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## ABSTRACT

This bulletin provides descriptions of two of the most widely used business and industry quality models--the British Standards Institution system (BS5750) and Total Quality Management (TQM). The focus is on applications of the models in further education colleges. The first section clarifies what the term "quality" means, in general and in the two models, and examines such terms as quality control, quality assurance, quality system, continuous quality improvement, standard, process, learner, and teacher. The next section addresses the context within which the two models are examined. Another section describes the two models and their implementation. The BS5750 is described as a general standard to which a quality management system must conform in order to obtain a system registration mark. The description of TQM includes a discussion of its five guiding principles: creation of an appropriate climate, focus placed on the customer, management by data/fact, people-based management, and continuous quality improvements. Issues for education and training are then considered. The different philosophies and ways of operating and of managing and the different objectives of the two approaches are discussed. "Quality" inspections already in place in colleges are examined in the context of the two models. A final section describes activities in colleges regarding the choice of a model. (35 references) (YLB)

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August 1991

# QUALITY MATTERS:

## Business and industry quality models and further education

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### INTRODUCTION

Further education in this country currently faces profound changes and new challenges. These include :

- the introduction of National Vocational Qualifications (NVQs)
- the Education Reform Act (ERA)
- the National Curriculum (NC)
- Training and Enterprise Councils (TECs)
- the growing partnership between business/industry and education
- the government's recent proposal for an FE Funding Council

They will all impact on education and its delivery. Emerging initiatives, such as those relating to core skills, will serve to increase the pace of change. All of these changes and challenges are intended to improve the quality of the education service.

In addition, the need to increase participation and attainment for Further and Higher Education poses its own challenges, not least those concerned with understanding the reasons for non-participation. The degree of success in meeting these challenges may well depend upon improving the quality of education.

There is therefore much discussion about quality, standards and quality models, both in education and in TECs. A number of such models exist which have been designed specifically for further education. For example, the model suggested in FEU's publication *Towards an Educational Audit*. Some colleges have devised their own tailored models, often with external funding (for example, from the Training Agency, now the Training, Enterprise and Education Directorate, TEED). A few consultants have also devised models for education. However, the creation of TECs in particular has focused attention on business and industry models. The two which are most widely used are the British Standards Institution system (BS5750) and Total Quality Management (TQM). Both are generally assumed to provide proof of quality. These and other models are mentioned in the *White Paper, Education and Training for the 21st century*, published in May 1991. This mention, together with the formation of TECs, makes it appropriate for FEU to

begin its examination of a number of quality models by looking at BS5750 and TQM. The *White Paper* also comments that 'It will be premature to advocate any one framework' (1). It is hoped that the statement in the *White Paper* will prevent any further pressure to adopt a particular system before a number have been explored and evaluated.

An earlier FEU newsletter contained a brief description of BS5750 and TQM. This bulletin provides fuller descriptions of both, particularly TQM (in response to many requests from college principals) because information about BS5750 is more widely available, and there is now some general understanding of it in the field. It goes on to consider their appropriateness to education in the UK, given that both are relatively untried in this context. The findings are based on documented research, on discussions with a number of companies, with consultants, employers' representatives, and with senior staff in colleges.

As indicated, this bulletin has been produced primarily for college principals. It might also be of interest to senior TEC members and to LEA officers.

### TERMINOLOGY

It is first necessary to clarify what the term **quality** means, in general and in the two models under discussion.

There is a **dictionary definition** of the term quality, and there is a **manufacturing definition**. The (Chambers) **dictionary** definition has two dimensions:

- 1) One refers to the nature of something, 'that which makes a thing what it is; its attributes; its characteristics'. It is value and judgement free. (For example, a quality of a conifer is that it bears cones.)
- 2) The other refers to a 'grade of excellence', which is a social construct, value related, and judgemental. (For example, there is a view that some makes of furniture are of better quality than others.)

The first dimension of the dictionary definition relates to a factual description; the second to qualifying that description. It is easy to be misled by the terminology into thinking that every use of the term indicates the second dimension above.

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A widely used **manufacturing** definition of quality refers to 'fitness for purpose', arrived at through conformance to specification. (The specification is supplied either by the purchaser or by the supplier. See below.)

Much effort has been invested in defining quality in Further Education (2) drawing reference from educational philosophy and from business and industry. It is not the purpose of this bulletin to extend that debate. For this discussion, quality in FE is taken to be concerned with the curriculum in its widest sense (3), with its resourcing, its delivery and its management, and with the access, participation, learning and attainment opportunities afforded. This concern may manifest itself in a demonstrable or measurable search for excellence of outcomes. Without appropriate measurements of what is required, of what is done to meet those requirements, and of the rate of success, it is neither possible to prove the 'quality' of what is done, nor to prove a trend that signifies improvement. The concern is also often reflected in the measures or criteria against which the quality of a college, for example, is considered by learners and/or their sponsors (Fig. 1).

In the light of the two models under discussion, it is also important to examine terms such as **quality control**, **quality assurance** and **quality system** – and **continuous quality improvement** (which is a process – see below).

**Quality control** is designed to keep a planned, systematic procedure in its planned state. It refers to using operational techniques or standardised procedures to check that products conform to specification. This is usually the role of the first-line employees. If goods do not conform to specification (either at the end of the production process or at a defined intermediate stage) they are not fit for purpose and if detected they may be removed from the production process and either destroyed or reworked.

**Quality assurance** refers to checks and audits which are carried out to ensure that the control procedures are – in practice – followed. This activity is usually the responsibility of managers.

A **quality system** is made up of the mechanisms used (for example, the assigned quality responsibilities, the procedures to be followed and the functions to be covered) and their documentation. A quality system is one that has the potential for producing goods to specification, though it cannot guarantee that all goods will meet it, nor can it guarantee that the specification or standards reached will be better than that provided by another supplier.

In addition to the difficulty of distinguishing between the terms quality control, quality assurance and quality systems, there can also be confusion about whether they are referring to the second dictionary definition of

quality (that is, the best possible standard), or to the manufacturing definition (that is, whether the goods or services are fit for purpose). When used in relation to a BSI (British Standards Institution) quality system, it is 'fitness for purpose' which is being referred to.

## HOW GOOD IS THE COLLEGE?

The quality of a college may amongst other things be measured by:

- choice, advice and flexibility over what and how to learn
- how the curriculum is taught and learned, and to what extent learners are enabled to achieve their full potential
- how the implications of ethnic diversity, gender and special needs are addressed
- how motivated the staff are, and what morale is like
- the kind of liaison there is with parents, with the community, with local schools and with business and industry
- how entry to and progression from a college is prepared for and supported
- the professional, technical and administrative support that is available
- how effectively these concerns are managed
- how these, and other, aspects of provision, meet the individual learner's agreed requirements, needs and expectations
- how cost effective it is
- its reputation and standing in the community
- its physical condition

Figure 1

**Quality improvement** is perhaps less problematic, because it acknowledges that the nature of something (as in the first dictionary definition above) can be improved, and therefore that grades of excellence can be aimed for. **Continuous quality improvement**, which forms the basis of TQM, refers to the notion of 'never being satisfied' with the current degree of quality and success in meeting customers' identified needs, requirements, interests and expectations. This is why it encompasses also the search for opportunities for improvement, rather than maintaining current performance.

Quality control and quality assurance are equivalent industrial terms for the educational practice of internal and/or external monitoring and evaluation. In colleges, monitoring and evaluation occur mostly at course level, and are conducted through course teams and co-ordinators and/or managers. They are less frequently applied to the whole curriculum, its management and resourcing, or to individualised programmes. At course level, activities are often the subject of external quality assurance assessment. For example, examining and validating bodies (EVBs) employ moderators to check that the course is subject to internal quality control and assurance – course monitoring and evaluation – and that these and other aspects of running the course meet the EVB's requirements. At individual subject level, the main quality measure is the final or cumulative assessment or examination. At institutional level colleges are subject to national efficiency measures. At both course or programme area, and at institutional levels colleges are subject to inspections by Her Majesty's Inspectorate (HMI).

The term **standard** is also variously interpreted. At times it refers to a 'common denominator' (in which case it is present already); to 'a description or measure to which others conform' (which is usually a minimum requirement); and at others to 'the degree of excellence achieved' (for example, by referring to comparative national awards or measures/statistics/aspirations).

Finally, the term **process** needs analysis. In most manufacturing or administrative activities, a process means a pre-specified sequence of standardised operations. In this sense, a linear flowchart would describe such a process. In education, when dealing with individuals, teaching and learning processes are subject to, and often rely upon, constant flexibility and change. They involve interactions, experiences, evaluation, change and growth. At times they require responsiveness, and at others they require proactivity, creativity and innovation. They often require all of these. In educational terms, a learning process is individual, is often reflective and is rarely linear. It is only at the most superficial level, therefore, (for example, following a timetable, or a scheme of work) that manufacturing or administrative processes and teaching and learning processes may be perceived as somewhat similar.

[The term **learner** is used throughout this document to refer to students (including adults who sponsor their own learning), trainees, and sponsored employees. The term **teacher** is used to refer to teachers, lecturers, trainers, facilitators, distance/open learning tutors, and personal tutors (who also teach).]

## CONTEXT

The need for FE colleges to look to efficiency and effectiveness, and the need to improve participation and attainment, are inescapable. Educational ideals and economic realities are not necessarily mutually exclusive, as long as appropriate changes in

organisational and curricular management, and in teaching and learning, can be effected. This in turn, depends significantly on the models for and approaches to change and quality which are adopted by colleges and LEAs. It also depends upon where the improvement of the curriculum, of teaching, of learning and of attainment, sits in relation to those models and approaches.

Both BS5750 and TQM are management models that were designed outside the educational context. The first is not a mandatory requirement of the second. BS5750 is sometimes used in addition to a TQM approach. This can be an historical feature because while TQM was practised in other countries, firms in this country were required by large companies to register for BS5750 for business-to-business tendering. Having then learned of TQM in subsequent years (for example, from Japan and from America) some firms then went on to adopt TQM. Many firms have had to continue with BS5750 registration for their production functions in order to tender to larger companies (which may or may not be familiar with TQM). In countries such as Japan, where TQM has flourished for nearly half a century, firms tend not to make reference to a BSI or an ISO (International Organisation for Standardisation) system.

BS5750 and TQM are both management methodologies with the principles of quality control and assurance common to both. BS5750 is a specified management and procedural system for companies to follow, usually in the production function but now in some functions in service organisations, in order to set up and to document a company's systematic operational procedures and audits. TQM is a process for managing and measuring continuous quality improvement of everything that a company does. The process is predicated on the principle that quality begins and ends with shared commitment, attitude and actions. Quality processes and procedures are important features of TQM. Their documentation is less emphasised than is proof of continued improvement in the quality of products or of services, and in meeting agreed customer needs, requirements and expectations. For those considering these approaches, the issues facing them are which, if either, is appropriate to pursue in order to **improve the quality of teaching and learning, to increase participation, and to improve attainment.** (Fig. 2)

FEU's Mission is concerned with the 'promotion of quality in FE curricula by encouraging the development of more effective, relevant and flexible learning opportunities for individual learners'. One of its medium-term aims is an improvement in the quality and status of curriculum management; and the Unit acknowledges that the 'future of maintained FE depends upon the ability of curriculum managers at all levels to promote change and increase cost effectiveness, while fulfilling their primary task of improving the quality of learning opportunities . . .' It is in this context, therefore, that the two models are examined.

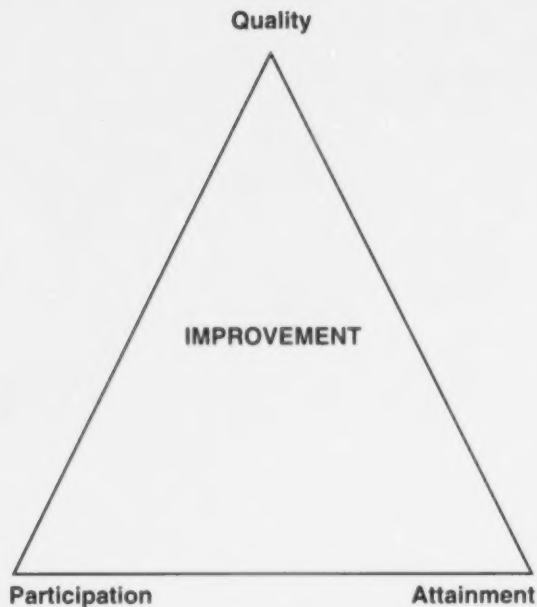


Figure 2

## MODELS

### WHAT IS BS5750?

#### DESCRIPTION

BS5750 is a general purpose standard to which a quality management system must conform, and against which it must be successfully assessed, if a system registration mark is sought (see fig. 3). The system is designed to control each step of a production process so that products match technical specifications. The product specification may be provided either by the firm itself or by the firms which purchase the products. The BSI system specification sets out how an organisation's activities should be operating in order that products may conform to specification. A BS5750 registration mark indicates that the systems which are described and documented by an organisation are adhered to. As indicated, quality in this model means 'fitness for purpose', arrived at through conformance to specification.

The standard comprises a set of defined clauses or characteristics (see fig. 3) and describes a 'basic set of elements'(4) for developing and implementing a quality management system. It is general enough to be applied to any manufacturing process. (Some non-manufacturing companies are applying the system in a service context.)

Each step in the production process is tracked, described and documented, made traceable (for

#### BS5750 Clauses

Management responsibility  
 Quality system  
 Contract review  
 Design control  
 Document control  
 Purchasing  
 Purchaser supplied product  
 Product identification and traceability  
 Process control  
 Inspection and testing  
 Inspection, measuring and test equipment  
 Inspection and test status  
 Control of non-conforming product  
 Corrective action  
 Handling, storage, packaging and delivery  
 Quality records  
 Internal quality audits  
 Training  
 Servicing  
 Statistical techniques

The system is divided into Parts, each covering an identified set of clauses.

Part 1 Design, production, installation and servicing

Part 2 Production and installation

Part 3 Final inspection and test

Part 1 covers all of the clauses

Part 2 omits design control, and after sales servicing

Part 3 is used only when conformance is assured at final test and inspection

BSI (QA) at Milton Keynes has stated that education and training providers may register for Part 1 or Part 2

Figure 3

example, through code or index numbers), and the documented procedures to be followed are set out in procedures manuals. In order to produce identical goods to specification, the system emphasises that working practices conform to the defined procedures. The objective is, therefore, that the procedures thereafter are uniformly followed. Checks and audits are conducted to ensure this.

The purpose of the procedures manuals is to provide an adequate description of the firm's system (5), and to enable an 'on-paper' assessment. The quality of the inputs, procedures and working practices themselves are not within the assessment remit, nor is the quality of their outcomes. For the BS5750 registration mark, the system must conform to the 'standard', which is a minimum requirement and can be adopted by any kind of firm, whatever its product/s. The documented system – not the content of the documents, or the processes or outputs of the system – is inspected by recognised Certification Body assessors for a fee. If the assessors are satisfied with the documentation, the firm may be added to the Department of Trade & Industry's (DTI) Registered Firms List, which is available from the DTI on payment of a fee. The cost of the biannual, unannounced inspection varies according to the size of the firm. The assessors, drawn mainly from engineering and manufacturing, qualify after a four-five day course (and an examination).

The system arose in mass production manufacturing/engineering where conformity and standardisation were of prime importance. In the 1960s and 1970s the Ministry of Defence, the Central Electricity Generating Board and others relied on their own inspectors to visit potential suppliers to check that they could produce goods uniformly to specification. Therefore, many firms were subject to multiple second-party inspections from various customers. To overcome this, a system was devised which could be commonly used by any manufacturing/engineering firm so that recognised third-party assessors could be 'subcontracted' to inspect and check a firm's system (not the products). A firm seeking the registration mark submits the documentation of its system for scrutiny. However, large companies (for example, Ford and Marks & Spencer) continue to 'inspect' potential suppliers rather than relying on the BS5750 mark, and set their own operational and product quality standards, such as Ford's Q101, which suppliers must meet (6).

The BS5750 registration mark is not a product quality kitemark or specification, and does not establish a level of excellence for a product. A BS5750 system does not purport to be anything more than a way of describing the capability of the system to produce goods to specification. Potential customers cannot expect of BS5750 that it will make a product the best of several available choices. Such an expectation confuses the definitions of quality. (An extreme analogy would be expecting any car firms with BS5750 to manufacture cars to Rolls Royce standards.) The same may be said

of a service. The BSI has stressed that 'Possession of BS5750 registration does not guarantee quality of service; .... The company may not always meet all the requirements of its internal system.' (7)

BS5750 is now firmly equated with the ISO 9000 Series. Both the British Standard and the ISO Series are concerned with meeting a specification, not improving it, or going beyond it. As was recorded at the 1990 American Society for Quality Control Congress (San Francisco), the ISO 9000 Series (and BS5750) 'intentionally does not emphasise the ability to demonstrate continual quality improvement capability'. (8)

## IMPLEMENTATION

General enquiries may be made to the BSI (9). Contact may also be made with one of a number of recognised Certification Bodies/Firms (10) to discuss or establish interest in registering to apply for inspection. Consultants are usually employed, at least initially, to help firms acquaint themselves with the BSI clauses and guidelines, and to help write manuals. Guidelines for implementing BS5750 in an educational and training context have been devised by one of the accredited Certification Bodies/Firms (11). There is scope for variation in the information required as different consultants and assessors may advise and expect different degrees of detail, but the manuals must feature a description of what a firm does to assure conformance, supported by documentation and forms, etc.

## WHAT IS TOTAL QUALITY MANAGEMENT?

### DESCRIPTION

Total quality management (TQM) is a metaphor for the process and management of change, designed to realign the mission, culture and working practices of a business to the pursuit of continued quality improvement. Total quality is founded on the belief that quality begins and ends with individual effort and attitude. It is a rigorous, highly disciplined and skilled process designed to challenge current practice and performance, and rests on an all-pervasive training or coaching programme, ultimately throughout an organisation. A TQM culture is predicated upon a commitment to customers' interests, needs, requirements and expectations, and upon the commitment of everyone to the constant improvement of the quality of everything that an organisation does and provides for its customers. The resultant culture and working practices are designed to continually improve inputs, both internal and external processes, and outcomes (or products in a manufacturing context).

TQM philosophy and practice originated through the ideas of Dr W. Edwards-Deming (12), an American who provided the intellectual drive behind Japan's post-war reconstruction. Amongst other things, he persuaded Japanese companies to **involve and consult with customers** in their efforts to continuously improve products.

J. M. Juran (13 & 14), who worked with Deming, concentrated on people-based management. His view was that in a 'control' situation the general attitude was that maintaining and perpetuating current standards or level of performance was good enough. He devised the 'break-through' philosophy which insists that present performance in any function and at any level can and should be improved, and that to achieve this improvement an organisation begins with first identifying – through dialogue, surveys, etc – **internal** obstacles and problems that prevent people from doing the best that they can, and eliminating/solving them.

Philip Crosby's work (15) has built upon and reflected the philosophies already outlined. His tenet is that in discussing quality the **focus should be on the people** responsible for improving quality. In turn, others such as Peters and Waterman (16) have expanded on the importance of **creating the appropriate supportive as well as self-disciplined climate** for promoting positive and effective commitment to improving quality.

These experts agree that implementing total quality management is a demanding task, that improvement and change are achieved incrementally, that it requires considerable planning, and that it can take a long time to introduce TQM (an average of five years for small or medium-sized firms). Once established, the organisation has taken its first steps on a never-ending journey in the pursuit of continuous improvement and excellence. A BS5750 registration mark is not a necessary prerequisite to TQM, particularly in the non-manufacturing sector. For example, organisations such as High Street banks, insurance companies, building societies and retail organisations have implemented TQM without a BSI-registered system, preferring instead to work from their own quality control mechanisms. Some non-manufacturing firms conduct an Organisation and Methods (O & M) exercise first in order to address, improve and where necessary to standardise procedures that impact upon the quality of service. This enables them quickly to begin the total quality improvement process. Others conduct a systems analysis. Some TQM companies (for example, Texas Instruments and many Japanese firms) win awards for the excellence of their products without reference to a BSI or to an ISO system.

## TOTAL QUALITY MANAGEMENT PRINCIPLES AND PRACTICE

TQM may be applied and introduced in a number of ways. It typically may be predicated upon five guiding principles:

- creation of an appropriate climate
- focus placed on the customer
- management by data/fact
- people-based management
- continuous quality improvement

### Creation of an appropriate climate

A change in working practices and relationships is required in most organisations in order to create a climate of 'not being satisfied' with current inputs, processes, performance or outcomes. The principles and practice of TQM enable a constant, self-conscious process of research, analysis/measurement of needs, requirements and expectations, of feedback, of measurement of results, impact and effectiveness, and of efficiency, in order to improve what is done and how it is done. This will include quality control processes, customer satisfaction, customer care, human resource development, financial resourcing and every other function in the organisation.

This change of climate is led by senior managers following an awareness and training programme which is designed to harness their commitment to continuous improvement and equip them with understanding and skills of TQM principles and practice. (See 'Implementation' section below.)

### Focus placed on the customer

The principle of focusing on the customer requires that the customer is consulted and involved in designing the process for delivering the product or service, and that suppliers and customers should be regarded as equal partners. This necessitates being very clear about who the organisation's customers are.

This principle also refers to an organisation-wide commitment to continually satisfying agreed/negotiated customer requirements, needs and expectations. This means that it is essential to question customers very carefully, in order to elicit that they and the company really know and understand what they want, and in order to determine what the company can provide. This in turn means that:

- customer requirements and needs are agreed, after discussion, explanation, negotiation and/or surveys

- expectations and interests are also addressed (i.e. the aim is not just a satisfied customer, but a delighted one)
- the customer plays an active part in the process or delivery system
- it is recognised that the degree of excellence of people's operational inputs – as well as established processes – can be improved, and that this improvement is the key factor in the degree of excellence, and of success, of the outcomes. This is seen as particularly relevant in the public/professional sector where the quality of inputs is virtually wholly in the hands of the front-line providers/staff
- regular measurement and evaluation of progress and improvement is conducted in all functions, against identified and where possible quantified needs, interests, requirements and expectations. The timing of measurement and evaluation needs to be carefully planned to ensure that the activities coincide with, for example, opportunities to change on-going processes, rather than to discover retrospectively whether improvements could or should have been made. This data collection and analysis is used for quality planning and, where appropriate, for giving proof of quality and the extent to which it has improved

The concept of customers and their requirements is applied inside the organisation as well as outside it. Everyone has a 'customer' inside the organisation because everyone uses, or expects, or receives, outputs or outcomes from someone else's work. Thus, everyone is at times a supplier, and at others a customer, and this applies to all levels in the hierarchy. Internally, therefore, it places equal accountability in all directions and means that both internal and external customer requirements, needs and expectations must all be clarified, negotiated and clearly understood.

### Management by data/fact

Management by data or fact means that reliance is placed on factual evidence of what is required – internally and externally – in order to facilitate improvements and to meet requirements, rather than on assumptions, on traditional or past experience, or on hearsay. This is usually the result of statistical process control (SPC) and/or root cause analysis. (See 17 & 18.) It is often a very significant change in operation and links closely with the principle of focusing on the customer (already discussed).

It is important accurately to determine, to prioritise and to quantify the requirements wherever possible, and to measure the gradual improvement in the rate of success in meeting and exceeding them. In this way **proof** can be provided of successes and improvements. Describing

the procedures that are followed does not prove either quality or its improvement.

Attitude and satisfaction surveys (of staff and customers) are sometimes used, and the analysis, measurement, evaluation and review of such surveys are used to assist with fact-finding, with appropriate measurements, planning and goal-setting. A common feature in the introduction of TQM is an employee survey to elicit common problems/issues that they face and which perhaps prevent them from doing their jobs better. (See 19.) The creation, use and interpretation of such surveys or information gathering must become part of the portfolio of skills employed particularly, but not exclusively, by managers, team leaders, and anyone with a co-ordinating or facilitating role.

The results of such surveys and evaluations are analysed and fed into action plans, indicators, or objectives for improvement. The results are measured against the first set of findings to determine the degree or nature of improvement and change that is needed. In business and industry, this careful, documented measurement can form a pattern against which increased satisfaction and/or improvement may be proved or predicted. Where appropriate, targets, goal setting or indicators could be informed by such data or predictability.

### People-based management

People-based management means that management style is participative in order to enable and empower people at every level and in each function to share in management decisions, and to share in the responsibility for effecting decisions. It aims to improve job satisfaction. To support this, it is essential to know what is important to staff (for example, through surveys, as indicated). It enables people to identify and 'own' problems and their solutions – rather than passing them up or around an organisation, or worse, hiding them. It also means that people listen to one another. Joint problem-solving, looking for improvement opportunities and teamwork are central keys to operating effectively. This goes beyond specialist teams. For example, project or other teams, which cross functional and hierarchical divisions, may be established for short, medium or long-term activities designed to identify and address problems, initiatives, research, development, improvements and changes.

In addition, a TQM approach ensures that efforts are recognised and acknowledged. To this end, many TQM firms ensure that all staff have a 'sponsor' (rather like learners having a personal tutor) in order to encourage, acknowledge and bring to attention the achievements, efforts and contributions of staff. Sponsors also play a part in mapping out, with those staff, their aspirations, plans, training needs, etc. Sponsors need not always be direct line managers.

The principles of continuous improvement are designed to ensure constant attention to what may be improved and to ways of improving it. This then helps to direct resources to those activities that impact most strongly on quality improvement, rather than resourcing on historical precedence or according to 'territorial boundaries'. The aim is excellence. This applies equally to internal and external operations, to outcomes or products, and to administration or support as well as to technical or professional functions.

When all of these principles are successfully put into practice, an organisation may be said to operate TQM.

### IMPLEMENTATION

Total quality is implemented at the top of an organisation first. While the ultimate aim is for everyone in the company to work on improvements in quality, emphasis is placed on training senior managers first because they initiate the changes required. The leaders in the business are trained in skills to enable them to change the way they work in order to practice and promote the principles of TQM, and then to help or to train others. The skills in question include:

- effective leadership
- root cause analysis
- problem solving
- coaching
- counselling
- interpersonal and communication skills
- team building and team working

Training is then cascaded to the rest of the company, concentrating first on staff with any co-ordinating, leading or management role.

Companies normally use the services of specialist consultants, at least initially, to help raise awareness of and commitment to this philosophy, and to train their managers in TQM practices. Thereafter, a TQM consultant or training provider can offer facilitators to help to introduce the practices and skills either to a firm's own trainers, or direct to the workforce. There are as yet few training materials for the introduction of TQM in business and none for education.

### PHILOSOPHY AND PRACTICE

A commonly occurring question in the debate about these quality models in education is whether the BSI system and TQM philosophy and practice are two ways of achieving the same end. The approaches represent different philosophies and different ways of operating and of managing, and have different objectives.

The BSI approach endorses a procedural view of quality, and prescribes a framework for a system. It sets out a procedural means of managing and operating, (a management tool – see 20). A registration mark is awarded if the description of processes and procedures conform to the given framework and if the assessors are satisfied that the system is adhered to. The registration mark attests to the capability of a system, not to its proven effectiveness, and as indicated earlier, it does not attest to the quality of outcomes or products.

The training for implementing and maintaining a BS5750 system typically involves an explanation for teaching staff of how to follow procedures. For senior staff it is designed to enable them, for example, to check that staff adhere to the system, and to maintain work instructions and associated records. Because responsibility for the system and for checking and tracing conformance is assigned to a few individuals, the system can favour a centralised and bureaucratic management approach (21). It is common practice in colleges for someone to be identified and given responsibility for writing the procedures for the system and for setting up and maintaining the manual(s). These latter tasks can form the basis of a full-time post.

Research indicates that the paperwork required for the system often becomes the focus of attention. The University of Manchester Institute of Science and Technology (UMIST) conducted a survey of small companies. The survey found that although some benefits resulted from acquiring a BS5750, e.g. 'raw material usage reduced' and a 'reduction in rejected batches', a 'common criticism of the standard is that it increases paperwork and that the system has a tendency to measure the efficiency of paperwork procedures rather than improvement activities, and that the ensuing quality audit tends to focus on individual clauses of the standard rather than the whole system. Other difficulties encountered and reported by the companies .... include the time taken to maintain (written) procedures required by the standard, .... and the effort required in keeping quality documentation and the quality manual up-to-date.' (22) A large building society is reported in the press to have assessed the practicality of introducing a BS5750 system. The building society already has well-established procedures to control and assure the quality of service. The reported conclusion was that 'To conform to BS5750 it (the Building Society) would probably have to introduce another layer and this might

create too much bureaucracy and make service worse.' (23)

TQM has as its objective the continuous improvement of inputs, processes – which in education must include both teaching and learning and its management – and outcomes/outputs. It requires an analytical approach to quality. Its philosophy demands commitment and participation. Its implementation concentrates on ensuring that employees understand TQM principles and on developing the techniques to achieve improvement, and it seeks to ensure that constant quality improvement is woven into the fabric of an organisation. In order to gain everyone's commitment, all staff ultimately pass through a skills training process. In this model it is the people, the process of gaining their commitment, the necessary training in TQM skills, and the measured results of evaluation and review of each function, and of cross-functional quality improvement activities.

Documented research on TQM found so far in this country concentrates on interviews with senior executives of TQM firms, to establish 'key factors' in implementing a total quality improvement programme. (For example, findings from interviewing 101 senior executives included the need to win the commitment of all those involved, to 'plan and measure', and to aim for 'responsibility resting in the hands of .... those actually dealing with the job'. See 24.) The firms contacted, and those who have published their own experiences, who are introducing or now operating under TQM principles, are clear that the need for commitment and conviction of senior managers, and the need for planning, cannot be underestimated. They are also clear that TQM is achieved gradually and cannot be rushed. For example, a High Street bank reports that it takes time and 'hard determined effort to turn a multinational company from being inward looking and systems led to achieving a reputation for excellence that feeds on itself.' (25) Although colleges are much smaller, there is little doubt that implementing TQM cannot be seen as a 'quick fix'. It is properly regarded as taking all staff forward, with a shared vision, one step at a time.

The 'concepts' of the BSI system specify that the quality system should only be as comprehensive as is needed in order to meet an organisation's quality objectives (26). This clearly suggests that in education (as in industry) some functions or activities may be omitted from the system. This is reflected in the practice of applying BS5750 to part or parts of a college, or, for example, to courses rather than to the whole curriculum, its professional and technical support, its resourcing and its management. This is not possible in a TQM environment, since TQM does not support the notion that any function, or activity, or any member of staff may be excluded.

## INTERPRETING THE MODELS

Since the BSI system is product based, it requires identification and definition of a product at the outset. The product is the subject of the system, processes and procedures which are documented. So far, in the BS5750 model the product has been described variously as the student/person, the course, or the enhancement of the skills and abilities of the person. Guidelines that have been produced for education no longer cite the student as the product, but some colleges continue to do so. There are difficulties associated with the remaining two definitions of the 'product'.

In terms of Part 1 of the BSI system (see fig. 2), most courses, syllabuses or standards are specified by Examining and Validating Bodies, or by Lead Bodies. Therefore, product design, which is included in Part 1, is only applicable where colleges are free to specify and design course content for contractual purposes with purchasers. It is unlikely, therefore, that colleges applying BS5750 across all courses could register for Part 1. However, in education it is generally acknowledged that a course, or syllabus or standards coverage, and its delivery, are **inputs** and not products.

So far as the product being enhanced skills and abilities are concerned, measures that adequately describe and quantify achieved 'value-addedness' have yet to be nationally devised. [See the Polytechnics & Colleges Funding Council/Council for National Academic Awards (PCFC/CNAA) project which compared 'index' and 'comparative' methods for calculating value added. (27)] If enhancement were to become the subject of the system, i.e. the product, there are significant implications for specifying such enhancement in advance of its achievement, particularly if it includes non-accredited achievement. As indicated, there are also implications for devising the means of measuring it in order to prove the case.

Some colleges refer to a qualification as the product specification. So far as NVQs are concerned, many Lead Bodies have stated that (the majority of) vocational competences are expected to be both acquired and assessed at the workplace, and this will apply equally to those in full-time education and those training/studying part time who are already at work. This raises the question about whether local firms engaged in collaborative exercises with colleges for work-based training and assessment will also have to achieve BS5750 in order that the college can achieve its registration and for the firms to continue to act as the colleges' suppliers of work-based training and assessment. If an A Level were used as a specification, negotiation would have to take place in order to specify which grade was to be considered 'fit for purpose'.

Although General National Vocational Qualifications (GNVQs) are being designed, many young people might still prefer to gain an NVQ, so colleges will wish to offer both NVQs and GNVQs, the former particularly for part-time and sponsored learners. If an NVQ is used as the product specification for an individual's enhanced ability, it assumes that nothing more needs to be done than to cover a set of Lead Body standards. There is considerable debate over whether additional opportunities for the development of core skills should also be on offer. Some colleges, therefore, will offer additional opportunities for increasing personal competences and skills, and for broadening the range of learning experiences. In any event, the quality standards set internally by individual colleges vary. The quality of the learning experiences in various colleges could therefore be significantly different. The registration mark will not, therefore, indicate whether a narrow or a broad learning programme is being offered, or indicate the relative quality of the learning experiences offered.

There is an assumption that the BS5750 registration mark will attest to either the 'whole student experience', or will signify standardisation of procedures/activities or both. The Process Control clause offers a choice of which processes to include and exclude. The number and type of processes included will vary. (For example, most colleges will include evaluation at course/programme level only; they may or may not include the procedures for resource allocation.) Colleges will be able to apply the system to either singular or multiple departments/units. The mark therefore may refer to just one of a number of departments or functions (as in industry) and involve a limited number of staff. A learner may be involved in additional extra-departmental learning activities, over which the department in question has no control. In some cases, colleges and training organisations are approaching accreditation bodies individually to negotiate interpretation of the system specification for education. The BS5750 mark, therefore, need not attest to the whole student experience, because the Process Control clause can be applied to just one part of a college, is subject to various interpretations, can omit teaching and non-teaching, and management and resourcing functions, and can omit significant features of that 'whole experience'. Nor will it attest to standardisation in applying the mark to colleges. The BSI anyway makes clear the fact that it is not the purpose of the standard to standardise quality systems (28).

Some are referring to 'the service' as the product. This suggests that 'the service' is the subject of the system and of the procedures that are being written. The features of the product already mentioned are equally features of 'the service'. They are not altered by changing the terms used, and would nevertheless need to be addressed. In any event, there is no agreement about whether 'the service' should include actual

teaching and learning processes. Whether a product or a service is cited, the procedures continue to refer to courses.

Total quality in education would mean that the learner were regarded as the prime external customer, with other parties (e.g. parents and employers) as secondary customers. Even if someone other than the learner pays the fees, the learner's learning needs, requirements and expectations must be met. If they are not, whatever is required by the fee-payer may well be in jeopardy. If the learner is also regarded sometimes as a supplier (e.g. of work handed in on time, of providing information, of taking responsibility for learning, of behaving responsibly and sensitively with others) this can mean that the learners become familiar with the principles, working practices and attitudes of mutual customer-supplier respect and responsibility. This process may then be extended to their working relationships with each other.

## INSPECTIONS

Colleges, their methods for course monitoring, evaluation and review, their assessment systems, and their teaching practices are already subject to regular 'quality' inspections and/or moderation by

- examining and validating bodies
- awarding body assessors and verifiers
- Her Majesty's Inspectorate (HMI)
- LEAs (while they continue in this role)

HMI conduct subject specialist and general full-college inspections, observe teaching, and report on particular colleges (to the Secretary of State, to the public and to the college/LEA). They also conduct surveys on particular issues across colleges, and publish the results of these surveys to disseminate good practice and to identify common features which could be improved. Course external moderation typically involves at least two, and usually three visits by specialist moderators every year. These specialist programme area moderators also look beyond the paperwork at course management, teaching and learning strategies, course monitoring, evaluation and review. They sample learners' work, and they verify the grades that have been awarded. They too note good practice for dissemination.

In most firms, each biannual BS5750 inspection typically covers approximately one quarter of the activities in the system, so that the system is fully inspected by the end of two years rather than each year (29).

The specification for the product is in the hands either of the supplier or of a second party (for example, a

validating body or a lead body). The BS5750 third-party assessors, therefore, do not have any remit for either the specification or for the quality of the system's inputs or outcomes. It is assumed that if the third-party assessors are satisfied with the system, the product or outcome will be successful. As already indicated, this need not be the case in industry, and this situation may be mirrored in education. It is possible that a college system may be on the DTI register, but the college need not meet the Awarding Body's criteria for validation or moderation. Equally a college may not meet the HMI inspection criteria or national standards. In addition, awarding body verifiers (for example, for NVQs) might judge that assessment quality levels had not been reached. BS5750 inspection will not obviate the need for course or programme validation, moderation or assessment verification, or for HMI inspection – it adds yet another, for which there is a direct fee. (This often occurs in industry also. See 30.) In addition, learners may judge that the teaching strategies did not meet their needs.

Private training providers generally offer neither the number nor the range and length of programmes found in colleges. In most cases, their work is not subject to inspections, validation, moderation, or assessment and verification, primarily because they tend not to offer studies which lead to nationally accredited academic and vocational qualifications. It is possible, therefore, that those private providers who wish to, or who may be obliged to achieve a system registration mark, will be assessed solely for BS5750 and that, therefore, only their documented systems will be inspected. (Nevertheless, it has been suggested that for small private trainers this could result in considerable costs which might be difficult to recoup. See 31.)

TQM does not involve an additional external third-party inspection or assessment, and does not have a registration mark (unless an award is won). It places reliance on practice and outcomes, and as such on reputation. Since its principles demand that the customer-supplier relationship be extended to all those involved in the enterprise, a close working relationship and involvement with external specialist advisers, inspectors and moderators; with professional associations and bodies and examining boards; and with employers should follow. This, amongst other things, would ensure that improvement requirements and opportunities were fully exploited. Those improvement requirements and opportunities, and evaluation and measurement, extend to every function in an organisation – and to all staff from, for example, the caretaker to the principal. No function, and no member of staff, would be omitted. Some senior managers who are interested in TQM have indicated interest in participating in mutual reviews with other TQM colleges. (Such external professional peer review is a longstanding and recognised means of assuring quality, especially in Higher Education.)

TQM is also the subject of national quality awards, for example, the Malcolm Baldrige National Quality Award in America. It is an annual award to recognise United States companies which excel in quality achievement and quality management. For example, the Award guidelines for 1990 placed great emphasis upon, amongst other things:

- quality values
- quality leadership and priorities
- public responsibility
- continuous quality improvement
- strategic quality planning process
- employee involvement
- human resource management
- quality of products/services
- quality assurance
- knowledge of customer requirements and expectations
- commitment to customers

and the ability to demonstrate that the **results of these practices and processes are recognisable and identifiable** by the customers (32). The guidelines are being explored to see whether they may be adapted to suit British organisations.

## SYSTEMS

Monitoring, evaluation and review methods (for example, based on those suggested by Examining and Validating Bodies) already exist in many departments in colleges. Some colleges are exploring the coherent spread of these practices throughout the organisation, at less cost, and with less bureaucracy than a BSI system. Others have devised their own college-wide course or programme quality improvement mechanisms. These do not follow the manufacturing model. A growing number of colleges are continuing with 'corporate' internally devised monitoring, evaluation and review practices, whilst exploring the move to TQM. Others are using *Towards an Educational Audit* as a quality gap analysis to audit every function and unit in a college, to map the current position and to plan for improvement.

A small number of colleges are exploring the use of systems analysts, or the expertise of O & M experts to organise and rationalise, and possibly computerise, administrative and quality control procedures, rather

than documenting and describing them for a third party. This is seen as a possible means of concentrating all other efforts on college staff and on establishing continuous quality improvement principles and practices.

## ACTIVITIES IN COLLEGES

### CHOICES

An over-riding issue is that whereas there are several quality management models available, because some TECs are insisting on local colleges obtaining BS5750, there might not be a choice over which to adopt. Also, a few manufacturing firms are beginning to demand BS5750 for training contracts with local colleges. There is little evidence of firms applying BS5750 to their own training activities. In any event, the scale of operation in firms and colleges is very different. In any one year, colleges frequently have approximately 12,000 learners following hundreds of programmes and courses, in different modes of attendance and for different lengths of time.

It is known that some TECs (for example, the Norfolk and Waveney TEC) are insisting that colleges and private training companies who would act as suppliers of Youth Training (YT) and Employment Training (ET) adopt BS5750. This may have led to the assumption that all TECs will require the adoption of this system, whereas some TECs, (for example, in Hertfordshire and in Wales) are exploring other quality measures. Barnsley LEA has adapted the FEU's suggested improvement process described in *Towards an Educational Audit* and has produced and is using its own version. The process has been applied across all post-16 provision – FE, Adult and Community Education, Special Education and Sixth Form provision. Barnsley LEA is the first proactively to negotiate and reach agreement with the local TEC to have this activity endorsed by the TEC.

It would seem that much will depend upon colleges being able to market and present their existing or planned quality approaches to TECs. Equally, much will depend upon the kind of working relationship a TEC wishes to adopt with local colleges. There is currently no consistency. Some college principals therefore may be faced with no choice in how to manage quality in their colleges and, regardless of whether they wish to implement a BS5750 system, they may find that they will have to fund the implementation of BS5750 out of the college budget. Although being the only college with a registration mark might result in some competitive advantage when bidding to TECs for business, if the same situation emerges in education as in some parts of industry, colleges, like companies 'may find that implementing and maintaining the standard is a burden in terms of

costs and extra paperwork ...', and that when TECs introduce competitive tendering, 'when most competitors also have BS5750 certification there is little marketing advantage...' (33). Where there is a choice over which model to use, amongst options already mentioned, some have elected to take a route either to BS5750 or to TQM.

### BSI SYSTEM

Guidelines from one of the Certification Bodies for converting BS5750 clauses to education and training have just been finalised. Assessment criteria will no doubt need to be influenced by such guidelines, as will the training of assessors. It is not yet clear whether BS5750 assessors will have to demonstrate educational/subject specialism expertise. Currently, three FE colleges have the BS5750 registration mark. Some colleges are working on procedures manuals in the hope of meeting the BSI system requirements for registration in the near future. Some are attempting to apply BS5750 to either one department (for example, the Engineering Department or Printing Department), or to Enterprise Units (full-cost short courses), or to PICKUP activities, whilst others are writing procedures for all courses, but not necessarily for all organisational functions.

The time being taken to write the procedures and the costs involved vary according to the number of college courses that are included. (It is possible that a college may need more than 150 manuals.) The average time seems to be two years. A large college reports that the exercise cost approximately £60,000 per year for two years. (It is externally funded.) The BS5750 assessment would cost an additional £12,000-£15,000 per year. (Assessment costs depend upon the size of the organisation and are linked also to the number of staff employed.) Estimated maintenance costs are £30,000-£50,000 or more per year, including materials, salaries, time and annual inspection costs (34). Clearly, smaller colleges or organisations would not incur the same costs (35). Some colleges are attempting similar exercises for a single unit or department and have external funding of approximately £20,000-£30,000 to add to their own contribution from college funds (approximately another £20,000). Virtually all of the colleges involved have external funding mainly from TEED.

A few colleges are reported as attempting to introduce both BS5750 and TQM simultaneously, sometimes applying the different models to different parts of the college. A small number of colleges report that they are spending approximately two years writing procedures to meet the standard, and may then plan to introduce TQM in the longer term.

Several FE college principals are planning or have begun to introduce TQM philosophy and practice in their colleges. For example, one college has just been re-organised and has used this as an opportunity to begin to introduce TQM. A VIth Form college began operating under TQM principles approximately two years ago because of a concern that education establishments might tend to disempower learners. The college is committed to regarding learners as partners. Another college has begun its move in this direction through a programme of 'systematic improvement' in which senior managers have been trained in problem analysis and other techniques associated with the management of change. Training is to be cascaded throughout the organisation. In addition, a college has established strong links with a local firm which is helping to introduce TQM in the college and to train college senior managers in the skills required for TQM. Others are negotiating for funds from TEED, or are seeking support from TECs and/or Governors, with a view to beginning implementation during the next financial or academic year. A number of principals are exploring the possibility of working collaboratively to introduce TQM. Much will depend upon funding.

Because principals are only now beginning to introduce TQM, or planning bids for funding, it is too early to indicate costs. Some may seek the services of consultants, at an average cost of £250-£500 per day, to undertake training of senior managers. (Some TQM firms, for example, indicate that consultants are required for at least 12-20 days for each of the first two years of the programme.) Others, as indicated, have received considerable help from local firms. (As information becomes available, it will be made known to the field.)

Principals who are introducing, or who wish to introduce, TQM in their colleges may well find themselves at the leading edge of continuous quality improvement and management practices in the UK, whereas BS5750 has been in existence for many years. Unlike, for example, the USA and Japan, many companies in the UK have yet to understand TQM. Messages about plans, expectations and practices, for marketing or for awareness raising, need therefore to be couched in terms that make sense to those unaccustomed to total quality management.

Secondary heads and VIth form college principals are showing increasing interest in TQM. The Careers Research and Advisory Centre (CRAC), through its Education and Training Programmes Division, has begun work on awareness-raising events, and is piloting TQM training courses for these (and other) senior education managers.

However quality is defined, it is as much concerned with doing the right thing as with doing things right. In further education, as in any phase of education, quality is the pursuit of excellence, with reference primarily to teaching and learning strategies, attainment, participation and internal and external professional working relationships. The resultant 'profits' go to the learners. Any approach to quality improvement therefore should be designed or chosen with learners in mind, because all efforts should be directed at improving their chances of success. The choice itself depends upon how well that model or approach meets a number of criteria.

The first criterion of any quality model is that it must primarily seek to **improve the quality of teaching and learning strategies**, in order to increase attainment. For improvement purposes, the focus must be on **how** results are achieved as well as on the results themselves.

The second criterion is that it must be **flexible**. FE exists in an increasingly turbulent environment, to which it must respond quickly and flexibly. For example, standardised provision is gradually being replaced, or augmented, by individualised learning programmes and action plans, which are customised to meet the particular needs of individual learners. The introduction of NVQs, and of associated practices such as accreditation of prior learning (APL), is likely to accelerate this trend, and is likely to change the roles of teachers. There is little point, therefore, in adopting a model that is not readily susceptible to change, or in charging staff to be responsive, flexible and creative in order to empower learners, if they themselves are disempowered by rigidities in structures, procedures or bureaucracy.

The third is that it must **harness the commitment of all (teaching and non-teaching) staff**. This requires 'open management', and giving staff ownership of quality improvements and responsibility for delivering improvements, not only in their own areas of work but also vertically and horizontally through the organisation where cross-functional problems would benefit from joint problem solving. Consequently, it requires training in leadership, in team working, in evaluation and measurement techniques, and in the analytical and problem-solving skills and techniques that will help them to manage the improvement process, in whichever function they work. This in turn will help to foster a **climate** in which problems are aired and approached proactively.

The fourth is that the **learner should be involved** in improving the process of teaching and learning. Quality improvement in any phase of education depends more upon the effectiveness of what happens during the interaction between the teacher (in whatever role) and

the learner than on virtually anything else. This includes indirect (i.e. via materials) as well as direct interaction. The involvement of learners in the design of individualised learning programmes will help, but there is a continuous need for both teachers and learners to ask themselves and each other how to improve what they do and how they do it. This requires a much shorter 'feedback' loop than is usually the case. The introduction of questionnaires is a step in the right direction, but it is the beginning rather than the end of the journey. Learners and staff, as customers and suppliers, must work together to ensure that learning needs, requirements and expectations are properly expressed, understood and addressed. This **working relationship** should be mirrored in all functions in the organisation.

The final criterion is that the model should establish the **measurement** of requirements and of success or otherwise in meeting those requirements, in all functions, in order that progress can be **proved**. This not only promotes the search for improvement opportunities, but also serves to motivate all those involved in the process by enabling successes to be publicised, both internally and externally, thereby completing a virtuous circle.

Ultimately, however, successful implementation of any quality model depends most strongly upon the people who are involved in it. Particularly in further education, the greater the involvement and collaboration in the chosen approach of all concerned, the greater are its chances of success. This does not refer only to teaching staff. The **collaborative partners** include teaching and non-teaching staff, learners (and where appropriate their parents or sponsors), together with external professionals, peers, and experts. The effectiveness of the chosen quality model should be assessed firstly in terms of the effect that it has on the learners. It should also be assessed both in terms of whether it improves the quality of teaching and learning, and whether it increases participation and attainment.

Responsibility for quality improvement in FE cannot be delegated, and it cannot be subcontracted. It is a responsibility that everyone concerned with a college must actively share, and it is against this background that BS5750 and Total Quality Management should be judged by educationalists, and by those who would direct them.

## WHAT NEXT?

The introduction of BS5750 in the FE sector has been funded by a number of bodies. There is, therefore, experience in the field of writing procedures to meet the BS5750 requirements. FEU will continue to monitor events and in the near future seek to carry out evaluative and comparative studies.

There is less experience, but substantial interest in, TQM in colleges. In response to many requests from principals in the field FEU plans to trial the introduction of TQM and formatively monitor, evaluate and report on the exercise. Its impact on all aspects of the curriculum, on its management, and on the quality of teaching and learning, will be of central interest in the venture. A version of TQM tailored specifically for colleges may emerge.

In addition, the formulation of quality criteria or standards that are easily understood, meaningful and valuable to learners (to their parents/sponsors as appropriate) and to the community at large, will be considered.

FEU will continue to work on providing practical guidance for course and curriculum evaluation, and will continue to monitor the use of the processes suggested in its publication, *Towards an Educational Audit*.

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## Additional information

The British Deming Association in Salisbury offers a free introductory service in the form of advisers who will visit an organisation to give a presentation on Deming's particular philosophy. (The British Deming Association, 2 Castle Street, Salisbury SP1 1BB.)

Anyone interested in the Unit's work on quality issues should contact Angela Cross-Durrant, Principal Officer, at FEU.

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